CLAIMS

1. An image data correcting device comprising:

a movement information acquiring section for acquiring movement information showing a spatial distribution of the magnitude of a movement in the real space of an image pickup part of a detected body;

a correcting section for making a correction different from that of a second area in a first area of image data of the image pickup part of said detected body collected by a scan of magnetic resonance imaging on the basis of said movement information; and

a synthesizing section for synthesizing respective image data of said first area and said second area corrected by said correcting section.

2. The image data correcting device according to claim 1, wherein said correcting section is constructed so as to perform linear correction processing according to a spatially ununiform deteriorating degree of said image data generated by the movement of said image pickup part.

3. The image data correcting device according to claim 1, wherein said synthesizing section is constructed so as to synthesize the image data after a first correction in said first area, and the image data after a second correction different from said first correction in said second area.

4. The image data correcting device according to claim 1, wherein said synthesizing section is constructed so as to synthesize the image data after the correction in said first area, and uncorrected image data in said second area.

5. The image data correcting device according to claim 1, wherein said movement information acquiring section has a navigator echo collecting section for collecting an echo signal for a navigator when data for imaging are collected from said image pickup part, and also has a movement information generating section for processing said echo signal and generating said movement information.

6. The image data correcting device according to claim 1, wherein said movement information acquiring section has:

a sensor for detecting the movement of said image pickup part from the exterior optically or by air pressure; and

a movement information generating section for processing a signal detected by said sensor and generating said movement information.

7. The image data correcting device according to claim 1, wherein said correcting section is constructed so as to respectively make different corrections with respect

to three areas or more of said image data.

8. The image data correcting device according to claim 1, wherein said movement information acquiring section has:

a navigator echo collecting section for collecting an echo signal for a navigator when data for imaging are collected from said image pickup part;

a processing information acquiring section for obtaining processing information including average values of the amplitude and phase of the movement of each part from said echo signal;

a profile acquiring section for acquiring an entire profile of said spatial distribution by using a model measured or supposed in advance; and

a movement information generating section for generating said movement information on the basis of said profile and said processing information.

9. The image data correcting device according to claim 1, wherein said movement information acquiring section has:

a navigator echo collecting section for collecting an echo signal for a navigator in one of a data read-out direction and a phase encode direction caused by the imaging when data for imaging are collected from said image pickup part;

a projection data generating section for processing said echo signal and generating projection data; and

a movement information generating section for using said projection data as said movement information.

10. The image data correcting device according to claim 1, wherein said movement information acquiring section has:

a navigator echo collecting section for collecting an echo signal for a navigator when data for imaging are collected from said image pickup part; and

a movement information generating section for calculating a shift of one of a phase distribution of a k-space of said echo signal and a position of at least one direction of an r-space as said movement information.

11. The image data correcting device according to claim 1, wherein an image data collecting section for collecting said image data by using a single signal receiving RF coil is arranged.

12. The image data correcting device according to claim 1, wherein said correcting section is constructed so as to substantially generate plural image data by multiplying said image data in said image pickup part by plural window functions having weight distributions different from each other.

13. The image data correcting device according to

claim 1, wherein said correcting section is constructed so as to perform linear correction processing with respect to one of a position shift due to said movement of said respective image data in said first area and said second area, and a phase shift within a voxel.

14. The image data correcting device according to claim 1, wherein said correcting section is constructed so as to perform linear correction processing shown by one of a mean shift as a zeroth order of one of the phase and the position, and affine transformation.

15. The image data correcting device according to claim 1, wherein an image data collecting section for executing said scan by using a pulse sequence constructed by a pulse series based on one of a spin warp method, a spiral method and a radial method in a pulse series of one of a multi-shot type and a single type is arranged.

16. The image data correcting device according to claim 1, wherein said movement information acquiring section is constructed so as to acquire the movement information showing a three-dimensional spatial distribution, and said correcting section is constructed so as to three-dimensionally make the correction on the basis of the movement information showing said three-dimensional spatial distribution.

17. The image data correcting device according to

claim 1, wherein said information acquiring section is constructed so as to acquire the movement information showing a spatial distribution of the magnitude of the movement of a non-rigid body.

18. The image data correcting device according to claim 1, wherein said movement information acquiring section is constructed so as to use the spatial distribution of the magnitude of a movement supposed in advance in said image pickup part.

19. The image data correcting device according to claim 1, wherein said correcting section is constructed so as to make corrections different from each other and including a non-correction with respect to two areas or more obtained by mutually synthesizing one portion of at least three areas or more in said image data of said image pickup part.

20. The image data correcting device according to claim 1, wherein an image data collecting section for collecting said image data by providing a sensitivity distribution according to the magnitude of the movement of said image pickup part in advance is arranged.

21. The image data correcting device according to claim 18, wherein said movement information acquiring section sets an abdominal part to said image pickup part, and is constructed such that a distribution substantially

linearly increased from the back side of said abdominal part to said abdominal wall side with respect to the amplitude of the movement of each part in a direction directed from said back side to the abdominal wall side is used as said spatial distribution.

22. The image data correcting device according to claim 19, wherein said correcting section is constructed so as to obtain said two areas or more by mutually synthesizing one portion of plural image data collected by using plural element coils.

23. The image data correcting device according to claim 19, wherein said correcting section is constructed so as to substantially generate said three image data or more as a synthesizing object by multiplying said image data in said image pickup part by plural window functions having weight distributions different from each other.

24. The image data correcting device according to claim 20, wherein said image data collecting section is constructed so as to collect said image data by using the multi-coil having plural element coils of sensitivity distributions different from each other.

25. The image data correcting device according to claim 24, wherein said image data collecting section sets the abdominal part to said image pickup part, and has two surface coils respectively arranged on the back side and

the abdominal wall side as said plural element coils.

26.   The image data correcting device according to claim 24, wherein said image data collecting section sets the abdominal part to said image pickup part, and has plural surface coils respectively arranged on the back side and the abdominal wall side as said plural element coils, and arranged in plural places along a direction directed from a head portion to a leg portion on at least one of said back side and said abdominal wall side.

27.   The image data correcting device according to claim 24, wherein said correcting section is constructed so as to substantially generate plural image data by multiplying one portion or all portions of the plural image data collected by using said plural element coils by plural window functions having weight distributions different from each other.

28.   An image data correcting device comprising:

a correcting section for making a correction different from that of a second area in a first area of image data of an image pickup part of a detected body collected by a scan of magnetic resonance imaging on the basis of movement information showing a spatial distribution of the magnitude of a movement in the real space of said image pickup part; and

a synthesizing section for synthesizing the

respective image data of said first area and said second area corrected by said correcting section.

29. The image data correcting device according to claim 28, wherein said correcting section is constructed so as to perform linear correction processing according to a spatially ununiform deteriorating degree of said image data generated by the movement of said image pickup part.

30. An image data correcting device comprising:

a first data converting section for converting data of a first space in a first area and a second area of an image pickup part of a detected body into data of a second space in a third area and a fourth area;

a correcting section for making a correction different from that of said fourth area with respect to the data of said second space in said third area;

a synthesizing section for synthesizing the data of said second space in said third area after the correction, and the data of said second space in said fourth area; and

a second converting section for converting the data of said second space after the synthesis into data of said first space.

31. The image data correcting device according to claim 30, wherein said first data converting section is constructed so as to set the real space to said first space, and set a k-space to said second space.

32. The image data correcting device according to claim 30, wherein said synthesizing section is constructed so as to synthesize the data of said second space in said third area after the correction, and the data of said second space in said fourth area after the correction different from said correction.

33. The image data correcting device according to claim 30, wherein said synthesizing section is constructed so as to synthesize the data of said second space in said third area after the correction, and uncorrected data of said second space in said fourth area.

34. The image data correcting device according to claim 30, wherein a movement information acquiring section for acquiring movement information showing a spatial distribution of the magnitude of a movement of the image pickup part of the detected body in said first space is arranged, and

said correcting section is constructed so as to make said correction on the basis of said movement information.

35. The image data correcting device according to claim 30, wherein said correcting section is constructed so as to perform linear correction processing according to a spatially ununiform deteriorating degree of the data of said first space caused by a movement of said image pickup part.

36. An image data correcting device comprising:

a first data converting section for converting data of at least one area among data of a first space of plural areas in an image pickup part of a detected body into data of a second space;

a correcting section for correcting the data of said second space; and

a second data converting section for converting the data of said second space after said correction into data of said first space.

37. An image data correcting method comprising:

a step for acquiring movement information showing a spatial distribution of the magnitude of a movement in the real space of an image pickup part of a detected body;

a step for making a correction different from that of a second area in a first area of image data of the image pickup part of said detected body collected by a scan of magnetic resonance imaging on the basis of said movement information; and

a step for synthesizing the respective corrected image data of said first area and said second area.

38. An image data correcting method comprising:

a step for making a correction different from that of a second area in a first area of image data of an image pickup part of a detected body collected by a scan of

magnetic resonance imaging on the basis of movement information showing a spatial distribution of the magnitude of a movement in the real space of said image pickup part; and

a step for synthesizing the respective corrected image data of said first area and said second area.

39. An image data correcting method comprising:

a step for converting data of a first space in a first area and a second area of an image pickup part of a detected body into data of a second space in a third area and a fourth area;

a step for making a correction different from that of said fourth area with respect to the data of said second space in said third area;

a step for synthesizing the data of said second space in said third area after the correction, and the data of said second space in said fourth area; and

a step for converting the data of said second space after the synthesis into data of said first space.

40. An image data correcting method comprising:

a step for converting data of at least one area among data of a first space of plural areas in an image pickup part of a detected body into data of a second space;

a step for correcting the data of said second space;

and

a step for converting the data of said second space after said correction into data of said first space.

41. A magnetic resonance imaging device comprising:

a movement information acquiring section for acquiring movement information showing a spatial distribution of the magnitude of a movement in the real space of an image pickup part of a detected body;

an image data collecting section for collecting image data of the image pickup part of said detected body by a scan of magnetic resonance imaging;

a correcting section for making a correction different from that of a second area in a first area of said collected image data on the basis of said movement information; and

a synthesizing section for synthesizing the respective image data of said first area and said second area corrected by said correcting section.

42. An image data correcting device comprising:

an image data collecting section for collecting image data of an image pickup part of a detected body by a scan of magnetic resonance imaging;

a correcting section for making a correction different from that of a second area in a first area of said collected image data on the basis of movement

information showing a spatial distribution of the magnitude of a movement in the real space of said image pickup part; and

a synthesizing section for synthesizing the respective image data of said first area and said second area corrected by said correcting section.

43. An image data correcting device comprising:

a data collecting section for collecting data of a first space in an image pickup part of a detected body by a scan of magnetic resonance imaging;

a first data converting section for converting the data of said first space in a first area and a second area into data of a second space in a third area and a fourth area;

a correcting section for making a correction different from that of said fourth area with respect to the data of said second space in said third area;

a synthesizing section for synthesizing the data of said second space in said third area after the correction, and the data of said second space in said fourth area; and

a second converting section for converting the data of said second space after the synthesis into data of said first space.

44. An image data correcting device comprising:

a data collecting section for collecting data of a

first space in an image pickup part of a detected body by a scan of magnetic resonance imaging;

a first data converting section for converting data of at least one area among the data of said first space of plural areas into data of a second space;

a correcting section for correcting the data of said second space; and

a second data converting section for converting the data of said second space after said correction into data of said first space.